REMARKS

This paper responds to the Office Action mailed on January 11, 2006.

Claims 27, 44, and 50 are amended, no claims are canceled or added; as a result, claims 27, 33, 36-38, 44-52 are now pending in this application.

Information Disclosure Statement

Applicant submitted an Information Disclosure Statement and a 1449 Form on April 26, 2000 and Supplemental Information Disclosure Statements and 1449 Forms on February 5, 2001, May 1, 2003, October 13, 2003 and December 18, 2003. Applicant respectfully requests that initialed copies of the 1449 Forms be returned to Applicant's Representatives to indicate that the cited references have been considered by the Examiner.

§112 Rejection of the Claims

Claims 27, 33, 36-38 and 44-52 were rejected under 35 U.S.C. § 112, second paragraph, for indefiniteness. Applicant respectfully traverses as claims 27, 33, 36-38 and 44-52 are definite as previously pending. The phrases "metal silicide" and "titanium silicide" are definite when introduced with the article "a" and later referred to using the article "the" as is common in US patent practice. Withdrawal of this rejection is requested.

§103 Rejection of the Claims

Claims 27, 33, 37, 38 and 44-52 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Wang et al. (U.S. 6,313,018) in view of Yamazaki et al. (U.S. 6,096,662). Applicant respectfully traverses.

Claim 27 recites, in part, "an annealed metal silicide layer on the polysilicon layer; a layer comprising SixNyOz:H formed over and in physical contact with the metal silicide layer, wherein x is from 0.39 to 0.65, y is from 0.02 to 0.56, and z is from 0.05 to 0.33; the annealed metal silicide layer being the product of a process in which the metal silicide layer is subjected to

an anneal treatment after the layer comprising $Si_xN_yO_z$:H is formed, wherein the layer comprising $Si_xN_yO_z$:H protects the annealed metal silicide layer during the anneal and the annealed metal silicide layer being unoxidized." Applicant can not find these features in Wang or Yamazaki, either alone or in combination. First, applicant can not find an annealed metal silicide layer on the polysilicon layer as recited in claim 27, in either Wang or Yamazaki. The present specification describes the anneal as providing improved crystallinity and conductivity, see, for example, page 2, lines 15-18. Accordingly, the term "anneal" describes physical characteristics of the gate stack.

The Office Action states on page 3 that "the layer comprising $Si_xN_yO_z$:H protects (inherent) the metal silicide layer during anneal." Applicant respectfully disagrees because the Office Action has not established a *prima facie* case of inherency because, as recited in MPEP § 2112, "In relying upon the theory of inherency, the examiner must provide basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art," citing Ex parte Levy, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990) (emphasis in original). The Office Action only states "inherent." Thus, the Office Action does not even assert that the allegedly inherent characteristic is necessary, let alone provide a basis in fact and/or technical reasoning. Applicant respectfully submits that "the layer comprising $Si_xN_yO_z$:H protects (inherent) the metal silicide layer during anneal" does not necessarily flow from Wang because Wang does not teach an annealed metal silicide layer.

The Office Action at page 4 states "Finally, the limitation in claim 27 that the silicide is annealed after the formation of the antireflective layer is merely a product by process limitation." Applicant traverses this assertion. The recitation in claim 27 of "the annealed metal silicide being the product of a process in which the metal silicide is subjected to an anneal treatment after the layer comprising $Si_xN_yO_z$:H is formed" is not merely a product by process limitation and is a functional limitation that deserves consideration and patentable weight. Applicant respectfully points out that functional language is specifically authorized by *In re Swinehart*, 439 F.2d 210, 169 USPQ 226 (CCPA 1971); *In re Caldwell*, 138 USPQ 243 (CCPA 1963); *Lewmar Marine, Inc. v. Barient, Inc.*, 827 F.2d 744, 3 USPQ2d 1766 (Fed. Cir. 1987).

However, this portion of the Office Action refers to Yao et al., which was used to reject the claims in the prior office action but not in the present action. Applicant requests clarification if Yao et al. is being applied in the present office action.

M.P.E.P. chapter 2113, states:

> "The structure implied by the process steps should be considered when assessing the patentability of product-by-process claims over the prior art, especially where the product can only be defined by the process steps by which the product is made, or where the manufacturing process steps would be expected to impart distinctive structural characteristics to the final product. See, e.g., In re Garnero, 412 F.2d 276, 279, 162 USPQ 221, 223 (CCPA 1979) (holding "interbonded by interfusion" to limit structure of the claimed composite and noting that terms such as "welded," "intermixed," "ground in place," "press fitted," and "**etched**" are capable of construction as **structural** limitations [Emphasis added].)"

Applicant submits that, in claims 27, 33, and 36-38, the "annealed" layer and the layer comprising $Si_xN_yO_z$:H protects the annealed metal silicide layer during the anneal and the annealed metal silicide layer being unoxidized are a **structural** limitations, as stated in the portion of the M.P.E.P above. Applicant is unable to find in the cited art, either individual or in combination, a metal silicide layer being "annealed" and in physical contact with the a layer comprising $Si_xN_yO_z$:H, as well as including the other features recited in the claims. Applicant is unable to find in the cited art, either individual or in combination, the layer comprising $Si_xN_yO_z$:H protects the annealed metal silicide layer during the anneal and the annealed metal silicide layer being unoxidized.

With regard to claims 33, 47, and 52, the Office Action states that Wang discloses the layer comprising $Si_xN_yO_z$:H has a thickness of from about 800 angstroms. The Office Action continues it is well within the level of ordinary skill in the art to use less processing time to produce a thickness of 250 angstroms to about 650 angstroms. This appears to be a form of Office Notice and as such applicant respectfully traverses. Applicant requests a reference to support his assertion. Applicant further traverses as the claimed thickness feature, when taken as a whole with the remainder of the claim, is allowable over the applied references.

With regard to claims 37, 45, and 52, the Office Action states that "Wang discloses in the abstract and fig. 2: x=0.5, y=0.37 and z=0.13 is in the bounded region." Wang does not refer to

any value of x, y, or z. The undersigned assumes that the Office Action is actually refereeing to the secondary document, Yamazaki. However, Yamazaki does not teach all of the features of claims 37, 45, and 52. For example, Yamazaki does not teach or suggest at the cited portions that z=0.13. Accordingly, not all of the features of the claim are found in the applied documents.

Claim 48 recites "the means for protecting the annealed metal silicide layer is adapted to protect the metal silicide layer from gaseous oxygen during the anneal." Applicant can not find these features in Wang or Yamazaki, either alone or in combination. The Office Action states that this is an inherent function. Applicant respectfully traverses. the Office Action does not even assert that the allegedly inherent characteristic is necessary, let alone provide a basis in fact and/or technical reasoning. Applicant respectfully submits that "the means for protecting the annealed metal silicide layer" does not necessarily flow from Wang or Yamazaki because Wang or Yamazaki do not teach an annealed metal silicide layer.

Claim 44 recites, in part, "an annealed, metal silicide layer on the polysilicon layer, the metal silicide layer being essentially unoxidized; a means for protecting the metal silicide layer during an anneal, the means for protecting consisting of a $Si_xN_yO_z$:H layer formed over and in physical contact with the annealed, metal silicide layer, wherein x is from 0.39 to 0.65, y is from 0.02 to 0.56, and z is from 0.05 to 0.33, the means for protecting the metal silicide layer being adapted to act as an antireflective layer." Applicant can not find these features in Wang or Yamazaki, either alone or in combination. First, applicant can not find an annealed metal silicide layer on the polysilicon layer as recited in claim 44, in either Wang or Yamazaki. The present specification describes the anneal as providing improved crystallinity and conductivity. Accordingly, the term "anneal" describes physical characteristics of the gate stack.

Claim 50 recites, in part, "an annealed, titanium silicide layer on the polysilicon layer; a means for alleviating stress on underlying layers, canceling reflected radiation, and protecting the annealed, titanium silicide layer during an anneal from gaseous oxygen, the means comprising a $Si_xN_yO_z$:H layer formed over and in physical contact with the annealed, titanium silicide layer, wherein x is from 0.39 to 0.65, y is from 0.02 to 0.56, and z is from 0.05 to 0.33." Applicant can not find these features in Wang or Yamazaki, either alone or in combination. First, applicant can not find an annealed metal silicide layer on the polysilicon layer as recited in claim 44, in either Wang or Yamazaki. The present specification describes the anneal as providing improved

crystallinity and conductivity. Accordingly, the term "anneal" describes physical characteristics of the gate stack.

With regard to claims 38, 46, and 51-52, applicant submits that these are allowable with their respective parent claims.

CONCLUSION

Applicant respectfully submits that the claims are in condition for allowance, and notification to that effect is earnestly requested. The Examiner is invited to telephone Applicant's attorney at (612) 349-9587 to facilitate prosecution of this application.

If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 19-0743.

Respectfully submitted,

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Date 11 April '06

By _____
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CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail, in an envelope addressed to: Mail Stop Amendment, Commissioner of Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on this 11 day of April, 2006.

Name

Signature